

# EL606. Packaging Materials

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## 1. Scope

The criteria shall apply to packaging materials and packaging products used for the first and second packaging of items, mainly based on paper, cardboard, pulp or synthetic resin. However, packaging products shall be limited to the case that the brand of items for package is not specified.

## 2. Definitions

### 2.1

“Packaging material” refers to materials used as raw materials of packaging such as packaging paper, packaging film and packaging shock-absorbing material.

### 2.2

“Packaging product” refers to products formed or processed to pack items immediately by using more than one type of packaging material such as dish, tray, box and bottle.

### 2.3

“Singular quality” refers to units capable of separation-assembly that consists of the packaging product or to that the quality of packaging material consists of single component. However, the items used to connect the packaging materials such as staple and rivet shall be excluded in the calculation of the number of components.

### 2.4

“Composite quality” refers to units capable of separation-assembly that consists of the packaging product or to that the quality of packaging material consists of more than two components.

### 2.5

“Separation-assembly available” refers to that components of packaging material can be easily separated with hands and they can be assembled back to the original shape of packaging material.

Note) Even though the components of packaging material in which materials of different quality are bonded-adhered-melted and attached or connected by staples or rivets can be easily separated with hands, they cannot be assembled back to the original shape of packaging material after separation, which is accordingly not regarded as packaging material capable of separation-assembly.

### 2.6

“Separation available” refers that the connected or assembled packaging material can be easily separated with hands or light tools.

### 2.7

“Waste material” refers to ‘post-consumer waste material’ and ‘pre-consumer waste, and to ‘old paper’ or ‘waste synthetic resin’ in certification criteria on packaging material.’

2.8

“Post-consumer waste material” refers to materials that finishes its purpose of use and is let out after passing through normal circulation stages.

2.9

“Pre-consumer waste material” refers to unused materials as a product that is generated in a form of scrap during the follow-up processing after original paper is produced. However, the material that is generated in the manufacturing process of original paper and then used again as raw material in the same process is excluded.

2.10

“Usage rate of waste material” refers to weight percentage of waste paper amount among the raw materials of paper used as products. With respect to the calculation of weight percentage, pulp raw material shall apply weight at a 10% of moisture content, and waste paper shall apply the weight at a natural dry by wind.

2.11

“Optical brightener” refers to materials which radiates fluorescence by an ultraviolet ray of incident light rays, and has an effect that makes things generally look even whiter.

**3. Certification Criteria**

**3.1 Environmental Criteria**

3.1.1 Paper/Cardboard/Pulp Packaging Material

3.1.1.1

Processing which makes collecting and recycling difficult as an old paper (synthetic resin laminating, resin coating, and oil impregnation) shall not be conducted. However, in case that the coated resin is alkaline dissociativity and alkaline dispersibility, resin coating is allowed.

3.1.1.2

The usage rate of waste materials (waste papers) shall satisfy the following requirements. However, packaging materials used for the first packaging for food, cosmetics and hygienic products shall not apply to the requirements.

Type		Rate of Waste Material Use (Waste Paper)	
		Rate of waste material use[weight%]	Rate of post-consumer waste material use[weight%]
Packaging Materials	Shock-absorbing material	100	≥ 70
	Corrugated cardboard (for internal packaging)	100	≥ 70
	Corrugated cardboard      Medium paper	≥ 90	≥ 70

	(for external packaging)	Liner stencil paper	≥ 50	≥ 40
		Cardboard	≥ 65	-
		Band, string	100	≥ 70
		Craft paper (for paper bag)	≥ 10	-
		Craft paper (for normal packaging)	≥ 30	-
		Other packaging paper	≥ 50	-
Packaging Products		Vessel	≥ 90	≥ 50
		Tray	≥ 90	≥ 50
		Cardboard box	≥ 60	-
		Corrugated cardboard box	≥ 90	≥ 70
		Mail envelope	≥ 20	-
		Other packaging product	≥ 40	-

Note) In case that the product satisfies either the standard of "Rate of waste material use" or "post-consumer rate of waste material use," the product shall be regarded to satisfy the standard rate of waste material use.

#### 3.1.1.3

Packaging Materials shall satisfy following requirements.

a) Materials but paper shall not be used in packaging products except in its connecting part or in case it is possible to separate and assemble. However, in case of using the product as a picture-window envelope certified by "Biodegradable Resin Products (EL724)" of Korean Eco-mark certification criteria, it is considered as satisfying this requirement.

b) In case of attaching label·mark·sticker, the support of label·mark·sticker shall use paper.

c) Rubber agglutinant and rubber adhesive shall not be used.

#### 3.1.1.4

The joint connection of packaging products shall satisfy the following requirements.

a) It shall not use metal or synthetic resin connecting tools (staple, rivet, and band).

b) It shall not use rubber agglutinant.

c) In case of using agglutinate tapes, the supporting structure of the tape shall be paper or pulp and agglutinate used in the agglutinate layer shall not contain the organic solvent.

#### 3.1.1.5

Optical brightener shall not be used in the packaging material. However, cardboard and aggregate liner stencil paper shall be excluded.

### 3.1.2 Synthetic Resin Packaging Materials

#### 3.1.2.1

Rate of waste material use (waste synthetic resin) shall satisfy the following requirements. However, composite-quality packaging materials used for the first packaging for food, cosmetics and hygienic products shall not apply to this requirement.

Type		Standard Rate of Waste Material Use (Old Paper)	
		Rate of waste material use[weight%]	Rate of post-consumer waste material use[weight%]
Singular Quality	Shock-absorbing material	≥ 70	≥ 50
	Band, string	≥ 80	≥ 70
	Envelope, vessel	≥ 50	≥ 40
	Other (for internal packaging)	≥ 70	≥ 60
	Other (for external packaging)	≥ 40	≥ 30
Composite Quality	Shock-absorbing material	≥ 80	≥ 60
	Band, string	≥ 90	≥ 80
	Envelope, vessel	≥ 60	≥ 50
	Other (for internal packaging)	≥ 80	≥ 70
	Other (for external packaging)	≥ 50	≥ 40

Note) In case that the product satisfies either the standard of “, rate of waste material use” or “post-consumer rate of waste material use,” the product shall be regarded to satisfy the standard rate of waste material use.

### 3.1.2.2

With respect to the recycling capability of packaging material, the product shall satisfy the following requirement.

a) The quality of packaging material and quality of each component unit of packaging material of packaging product capable of being separated-assembled shall be one type polymer (single polymer or copolymer) or composite material capable of being recycled (polymer alloy, polymer alloy). Also, attached label/mark/sticker shall have the quality as same as the attached part or shall not give any trouble in recycling.

b) The classification of quality shall be marked on the separable component unit of packaging material with more than 25g weight and more than 200<sup>mm<sup>2</sup></sup> flat part in order to make separation and withdrawal of the product easy in the disposal stage.

c) Halogenated compounds such as PVC shall not be used. Exempted from this requirement are the separable plastic parts weighing less than 25g.

### 3.1.2.3

With respect to the chemical substances used in the manufacturing process, the product shall satisfy the following requirements.

a) Regarding foaming products, substance whose ODP is zero shall be used as a foaming agent.

b) PBBs (polybrominated biphenyls), PBDEs (polybrominated diphenylethers), or short-chain chlorinated paraffins (C= 10~13) whose chlorine concentration is 50% or more shall not be used as

flame-retardants.

c) TBT, TPT, lead, and cadmium compounds shall not be used as a stabilizer or activator.

### 3.1.3

Packaging of the product shall be manufactured in consideration of the easiness of recycling, reduction of waste materials and harmfulness to environment.

## **3.2 Quality Criteria**

### 3.2.1

If Korean Industrial Standards are available as a national standard of the product in question, it should satisfy the quality or performance criteria of the standard in question. However, items related “3.1 Environmental Criteria” are excluded.

### 3.2.2

If no Korean Industrial Standards are available as a national standard of the product in question, it should satisfy the quality and performance criteria according to the following sequence. However, the items related to “3.1 Environmental Criteria” are excluded. Also, if the E-Mark Certification Criteria Setting Committee determines that the applying criteria are not reasonable considering the characteristic of the product, it should satisfy the standards that were modified by the committee (test item, test method, standards, etc.).

#### 3.2.2.1

National standards other than Korean Industrial Standards.

#### 3.2.2.2

Overseas national standards or international standards regarding the product quality in question.

#### 3.2.2.3

Standards of the organizations at home and abroad that are referred by the current E-mark target product and certification standard.

#### 3.2.2.4

A private standard that is recognized as higher than the national standard in the industry of the product in question.

### 3.2.3

Packaging material used for first packaging of food shall satisfy the criteria of manufacturing apparatus, vessel and packaging in accordance with the Clause 1, Article 9 of Food Hygiene Act and the criteria of standard on apparatus-vessel-packaging and raw materials.

## **3.3 Consumer Information**

### 3.3.1

Indication on the items that the product contributes to the reasons for certification (available resource

recycling, easiness of recycling, reduction of waste material) during its consumption stage

### 3.3.2

Attentions to enhance recycling capability in disposal

## 4. Test Methods

Certification Criteria		Test and Verification Methods
Environmental Criteria	3.1.1	3.1.1.1 Verification of submitted documents or test report by an accredited testing laboratory in accordance with the test methods 4.1 and 4.2
		3.1.1.2 Verification of submitted documents and actual location
		3.1.1.3~3.1.1.5 Verification of submitted documents
	3.1.2	3.1.2.1 Verification of submitted documents and actual location
		3.1.2.2~3.1.2.3 Verification of submitted documents
		3.1.3 Verification of submitted documents
Quality Criteria	3.2.1~3.2.2 Test report by the relevant accredited testing laboratory in accordance with corresponding standards or certificate of equivalent	
	3.2.3 Test report by an accredited testing laboratory in accordance with 6. requirement and standard of apparatus and vessel/package of food public legal system or certificate of equivalent	
Consumer Information		Verification of submitted documents

### 4.1 General Matters

#### 4.1.1

One test sample shall be required for each applied product. However, if more than one test sample is needed, the former requirement may not be met.

#### 4.1.2

Test samples shall be collected at random by a certification institute from products in market or those in storage at the production site.

#### 4.1.3

The result of test shall be numerically set according to KS Q 5002 (Statistical interpretation method of the data – Part 1: Statistical description of the data).

### 4.2 Test Methods for alkaline dissociativity and alkaline dispersibility

#### 4.2.1 Reagent and Materials

##### 4.2.1.1

Alkaline solution (0.5% sodium hydroxide solution): Dissolve 5g sodium hydroxide (NaOH) in water to make it 1,000mL. Standardization may be omitted.

#### 4.2.1.2

Filter media: It shall use the metal wire cloth or the perforated metal plate of which the opening size is between 100 – 150  $\mu\text{m}$ .

Note) Test sieves, of which opening size is 106  $\mu\text{m}$  and 150  $\mu\text{m}$ , as the Tyler screen is equal with the test sieve of 150 mesh and 100 mesh repetitively.

#### 4.2.2 Test Apparatus and Equipment

##### 4.2.2.1

Dissociation vessel: Glass beaker with more than 2L volume or glass vessel for Jar tester

##### 4.2.2.2

Agitator: It shall be adjustable to 2000 rpm and the shape of impeller shall be similar to the 'figure 2 (propeller)' of the KS M 7030 (Method of Preparing Hand sheets for Pulp Testing) or the blade of a knife.

##### 4.2.2.3

Heater: It shall regulate the temperature inside the dissociation vessel to between  $55\pm 5^{\circ}\text{C}$  when cooking in a double boiler.

##### 4.2.2.4

Dryer: It shall regulate the temperature between  $105\pm 5^{\circ}\text{C}$ .

#### 4.2.3 Preparation of Test Sample

Take resin coating paper with the size equal to 20 - 30g, and cut it fine in less than 1  $\text{cm}^2$ .

#### 4.2.4 Test Methods

##### 4.2.4.1

Put 1L alkaline solution into dissociation vessel with test sample, and then heat to  $55\pm 5^{\circ}\text{C}$  slowly.

##### 4.2.4.2

Dissociate 1500 $\pm$ 100 rpm for 10 minutes with an agitator

##### 4.2.4.3

Stop agitating, and wash extraneous matter off from wall of vessel with 50mL alkaline solution, and then dissociate it at 1500 $\pm$ 100 rpm for 10 minutes again with an agitator.

##### 4.2.4.4

Repeat the 4.2.4.3 process three times and station the solution for 5 minutes and then filter it through a filter bed. Rinse the dissociation vessel with warming alkaline solution not to remain any extraneous matter on the wall and remove floating matters from the upper layer of the solution, and then put it into filter media. When filtering, rinse the media with the alkaline solution several times in order to pass enough soluble alkaline substances through the filter media and wash the media with water of  $80\pm 5^{\circ}\text{C}$

several times to remove sodium hydroxide remaining on pulp sludge.

#### 4.2.4.5

Let stand the pulp sludge on the filter media for 20 - 30 minutes with the media and dry for 2 hours in the dryer of  $105\pm 5^{\circ}\text{C}$ .

#### 4.2.4.6

Let the dried filter media cool and take the remaining pulp on the media to evaluate alkaline dissociativity and alkaline dispersibility.

### 4.2.5 Evaluation of Alkaline Dissociativity and Dispersibility

#### 4.2.5.1

See with the naked eye if the dried pulp contains impurities including lumps of rubber and synthetic resins.

#### 4.2.5.2

Press the surface of the pulp with a dry hand or a filter paper to see if the pulp has adhesive property.

#### 4.2.5.3

Rate pulp as alkaline dissociativity or dispersibility in case that pulp does not contain impurities and has adhesive property.

## **5. Reasons for Certification**

### 5.1

Products using waste materials as much as the standard rate of waste material use: "Use of recycled materials, readily recyclable, less wastes"

### 5.2

Products which are not applied from the standard of use rate of waste material, and not used waste materials as much as the standard of use rate of waste material: "Readily recyclable, less wastes"



## **Common Criteria, Notice No. 2012-36, the Ministry of Environment**

1. Eco-label products must follow the following provisions with regard to the proper treatment of environmental pollution substances, such as air and water wastes and noxious chemical substances emitted in the process of manufacturing or service operation.

A. When first applying for certification, the product manufacturer should observe the environment related laws and agreements pertaining to the region where the production factory or the place of service operation is located for a period of one year prior to the date of application. Any case of violation of the penalty clause will be verified by confirming documents involved during a period of one year to the date of application. Regarding any violation not related to the penalty clause, confirmation will be made on the completion of appropriate measures.

B. A person who has received a certification of eco-labeling shall observe the environment related laws and agreements pertaining to the region where the production factory or the place of service operation is located during the period of certification. However, regarding any violation besides a penalty, confirmation will be made on the completion of appropriate measures.

2. As a general rule, information for consumers shall be indicated on the surface of the product in such a way not to be easily erased. However, in case that indication on the surface of the product is impossible or undesirable, it can be indicated on the appropriate part such as product packaging, product guidebook and user's manual that consumers can recognize. However, the service information should be indicated inside and outside of the place of service operation. In case that indication inside and outside of the place of service operation is impossible or undesirable, it can be indicated on the appropriate part such as an agreement, letter of delivery, letter of guarantee, and PR materials that consumers can recognize.

3. In order to establish fair trade and to protect consumer, the applicant for eco-label and the holder of eco-label license shall observe the Act on the Fairness of Indication and Advertisement with respect to the environmental aspects of the product.

4. For Various standards referred in the certification criteria by target product, the latest revised edition applies at the date of application, if not specified otherwise.

5. In applying the quality related criteria for each target product, if no standard is available that can be applied as the quality criteria, the president of Korea Environmental Industry & Technology Institute (KEITI) (hereafter referred to as "president of KEITI") may establish and operate the quality criteria for the product involved after review by a competent committee.